

10089660-043102
10/089660

JC05 Rec'd PCT/TO 29 MAR 2002

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICETRANSMITTAL LETTER TO THE U.S.
DESIGNATED/ELECTED OFFICES (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371ATTORNEY DOCKET NO
70101/00101Commissioner for Patents
P.O. Box 2327
Arlington, VA 22202

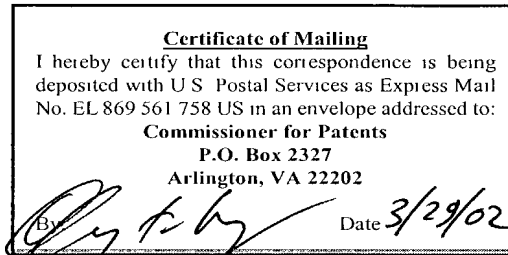
Box: PCT RO/US

Customer No.:



30636

PATENT TRADEMARK OFFICE



Sir:

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

International Application No.: **PCT/IT00/00383**
International Filing Date: **28 September 2000**
Priority Date Claimed: **29 September 1999**
Applicant(s) for DO/EO/US: **DASSI, Francesco**

Title of Invention: **CLEANING APPARATUS FOR HAIR BRUSHES AND COMBS**

Applicant's Statements:

1. This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. This express request to begin national examination procedures (35 U.S.C. 371(f)).
3. A copy of the International Application as filed has been transmitted by the International Bureau.
4. Amendments to the claims of the International Application under PCT Article 19 have not been made and will not be made.

Applicant hereby submits following items:

1. International Application including a Cover Page.
2. Drawings.
3. Declaration of the Inventor(s) (unexecuted).

TRANSMITTAL LETTER TO THE U.S. DESIGNATED/ELECTED OFFICES (DO/EO/US)
 CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY DOCKET NO
 70101/00101

4. Preliminary Amendment.
5. International Search Report.
6. International Preliminary Examination Report along with substitute pages for specification.
7. Information Disclosure Statement and PTO-1449 along with (3) three references.
8. Return Receipt Postcard.
9. A deposit account charge authorization: Please charge the deposit account of **Fay Kaplun & Marcin, LLP**, No. **50-1492** in the amount of **\$445.00** for the filing fee calculated as shown below:

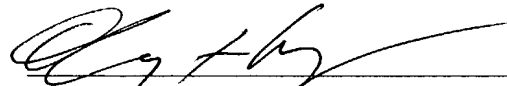
	NUMBER FILED	NUMBER EXTRA*	RATE (\$)	FEE (\$)
BASIC FEE				890 00
TOTAL CLAIMS	18 - 20 =	0	18.00	
INDEPENDENT CLAIMS	1 - 3 =	0	84 00	
MULTIPLE DEPENDENT CLAIM PRESENT			280 00	
*Number extra must be zero or larger			TOTAL	890 00
If applicant is a small entity under 37 C.F.R. §§ 1.9 and 1.27, then divide total fee by 2, and enter amount here			SMALL ENTITY TOTAL	445 00

10. A copy of this transmittal letter is enclosed for the following Deposit Account purposes:

The Commissioner is hereby authorized to charge the payment of any additional fees associated with this communication or arising during the pendency of this application, with the exception of the issue fee, to the Deposit Account of **Fay Kaplun & Marcin, LLP No. 50-1492**.

When payment of the issue fee has previously been provided or authorized, the Commissioner is hereby authorized to charge any post issuance fees required, except for patent maintenance fees, to the Deposit Account of **Fay Kaplun & Marcin, LLP No. 50-1492**.

Dated: *March 29, 2002*

By: 
 Oleg F. Kaplun (Reg. No. 45,559)
 Fay Kaplun & Marcin, LLP
 100 Maiden Lane, 17th Floor
 New York, NY 10038
 (212) 898-8870 (phone)
 (212) 208-6819 (facsimile)

[70101/00101]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : DASSI, Francesco
Serial No. : To Be Assigned
Filed : Herewith
For : CLEANING APPARATUS FOR HAIR BRUSHES AND COMBS
Art Unit : To Be Assigned
Examiner : To Be Assigned

Commissioner for Patents
P.O. Box 2327
Arlington, VA 22202

PRELIMINARY AMENDMENT

SIR:

Please amend the above-identified application before examination, as set forth below.

IN THE SPECIFICATION:

Page 1, delete line 3 and insert:

--Background Information--.

Page 1, delete lines 28-35 and insert the following:

--U.S. Patent 3,348,253 describes a device for removing hair from a hair brush and/or a comb comprising two elongated brushes and rotating in opposite directions which comb the hair out of the hair brush into a lower hair receiving compartment.

Nederland Patent 9,300,585 and U.S. Patent 3,805,318 describe apparatuses according to the preamble of claim 1, where however the rotating shaft/s is/are actually one/two bristled brush/es.

A brushing action implies a relevant friction force between a cleaning brush and an hair brush to be cleaned, causing i.a. both to become worn.

The problem at the basis of the present invention is that of eliminating the above disadvantages, by creating an apparatus for removing hair entangled among the teeth of combs or among the bristles of brushes, which should clean combs and brushes in an effective, fast and hygienic way without damaging the items to be cleaned -which may often be fragile materials, have a cloth body and be expensive and valuable-, which should avoid the operator having to hold the brush or comb against the friction force tending to entrain it in rotation. Such an apparatus should preferably have reasonable weight and size, such as to be easily placed on a bathroom console or on the sink bench at the hairdressers.--.

Page 2, delete lines 1-6 and insert the following:

--Summary of Invention

The invention relates to an apparatus for removing hair from the teeth of a comb or the bristles of a brush, comprising at least a whip extending from at least one rotating shaft for cyclically passing through a comb or brush receiving position, and suction means for creating an air stream in the proximity fo the receiving position, characterized in that each whip is so spaced apart from any other possible whip of a same rotating shaft as not to interfere, in use, therewith, whereby each whip of a same rotating shaft acts on a comb or a brush individually.--

Page 5, before lines 20, insert:

--Brief Description of Drawings--.

Page 6, before lines 15, insert:

--Detailed Description--.

Page 12, delete line 2, and insert:

--What Is Claimed Is--.

IN THE CLAIMS:

Without prejudice, please cancel original claims 1 -- 18 and substitute claim 1 and add new claims 19 -- 36 as follows:

–19. (New) An apparatus for removing hair from one of teeth of a comb and bristles of a brush, comprising:

a first rotating shaft;

a plurality of whips extending from the first rotating shaft for cyclically passing through one of a comb receiving position and a brush receiving position; and

a suction arrangement generating an air stream in proximity to one of the comb receiving position and the brush receiving position,

wherein a first whip of the plurality of whips is spaced from a second whip of the plurality of whips by a predetermined distance so that, during use of the apparatus, the first whip does not interfere with the second whip, the first and second whips acting on one of the comb and the brush individually.

20. (New) The apparatus according to claim 19, further comprising:

a collecting arrangement collecting the hair sucked by the suction arrangement.

21. (New) The apparatus according to claim 19, wherein the at least one rotating shaft includes a second rotating shaft, the second rotating shaft being parallel to the first rotating shaft, the second rotating shaft including a third whip extending therefrom.

22. (New) The apparatus according to claim 21, wherein the first and second shafts are rotating in opposite directions so that the first and third whips converge from one of the comb and brush receiving positions towards the suction air stream.

23. (New) The apparatus according to claim 21, wherein the first and second rotating

shafts are separated from one another by a particular distance, the particular distance being substantially equal to a length of the first whip.

24. (New) The apparatus according to claim 19, wherein the first whip is flexible.
25. (New) The apparatus according to claim 19, wherein the first whip is mounted?
26. (New) The apparatus according to claim 19, wherein each of the first and second whips includes a free end of a continuous thread wound on a reel.
27. (New) The apparatus according to claim 21, wherein the first and second whips are mounted on respective removable whip-holder hubs.
28. (New) The apparatus according to claim 27, further comprising:
a plurality of scrapers situated tangentially to at least one of the first and second rotating shafts and the respective whip-holder hubs.
29. (New) The apparatus according to claim 19, wherein the apparatus has a containing box-shaped body, the body having an aperture through which the first whip extends toward one of the comb receiving position and the brush receiving position, the aperture providing an inlet of air for the suction air stream, the body having aeration slits.
30. (New) The apparatus according to claim 29, wherein the aperture is located at a top side of the box-shaped body.
31. (New) The apparatus according to claim 29, further comprising:
a protective shell situated at the aperture.
32. (New) The apparatus according to claim 31, wherein the protective shell has an access door urged toward a closed position, the protective shell interacting with a safety switch.

33. (New) The apparatus according to claim 29, wherein the box-shaped body includes an extractable drawer-like container collecting the hair, the container including a hair-retaining filter.
34. (New) The apparatus according to claim 29, wherein the box-shaped body includes an inspection door positioned corresponding to a position of the first whip.
35. (New) The apparatus according to claim 19, further comprising:
a motor operating a fan of the suction arrangement and the first rotating shaft.
36. (New) The apparatus according to claim 21, further comprising:
a motor operating a fan of the suction arrangement and the first rotating shaft;
a first motion transmission arrangement situated between a driving shaft of the motor and the first rotating shaft; and
a second motion transmission arrangement situated between the first and second rotating shafts.--.

IN THE ABSTRACT:

Please insert the following Abstract:

-- ABSTRACT

Described is an apparatus for removing hair entangled among the teeth of combs or the bristles of brushes, after their use, which acts through the action of rotating whips and of an assembly for sucking and collecting the removed residuals--.

Remarks

This Preliminary Amendment cancels without prejudice original claims 1 -- 18 and substitute claim 1 in the underlying PCT Application No. PCT/IT00/00383, and adds,

without prejudice, new claims 19 -- 36. The new claims conform the claims to U.S. Patent and Trademark Office rules and do not add new matter to the application.

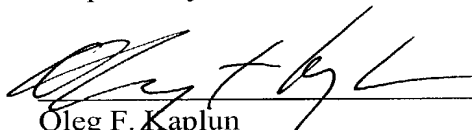
The underlying PCT Application No. PCT/IT00/00383 includes an International Search Report, with a mailing date of December 21, 2000. The Search Report includes a list of documents that were uncovered in the underlying PCT Application. A copy of the Search Report accompanies this Preliminary Amendment.

The underlying PCT Application also includes an International Preliminary Examination Report, dated January 3, 2002, and an annex. A copy of the International Preliminary Examination Report and the annex accompanies this Preliminary Amendment.

Applicant asserts that the subject matter of the present application is new, non-obvious, and useful. Prompt consideration and allowance of the application are respectfully requested.

Respectfully Submitted,

Dated: *March 23, 2002*


Oleg F. Kaplun
Reg. No. 45,559

Fay Kaplun & Marcin, LLP
100 Maiden Lane, 17th Floor
New York, NY 10038
Tel: 212-898-8870
Fax: 212-208-6819

8/10/02

CLEANING APPARATUS FOR HAIR BRUSHES AND COMBS

DESCRIPTION

As known, during combing with brushes or combs, it is easy
5 and often unavoidable also in the healthiest hair that at
the end of their use, these tools are not clean, and that
hair remains entangled in their teeth or bristles.

At present, hair is mainly removed by rubbing two brushes
with one another, a method not assuring a perfectly
10 thorough hygiene of the tools. There also exist a simple
tool shaped as small rake, whose curved metal teeth are
inserted, where possible, among the brush bristles, and a
device consisting of two idly-mounted parallel bristled
rollers between which a comb, but not a brush, can be
15 manually caused to slide thus obtaining a certain degree of
cleaning. All of these methods do not perfectly clean, and
they act with extreme slowness. Thus, cleaning brushes is
boring, since much work is needed for obtaining visible
results, and above all is unpleasant since none of the
20 available devices takes care of collecting the removed
residuals which, due to their volatility, are not even easy
to locate.

This problem, which may be noticed also at home, is
particularly felt by professional hairdressers due to the
25 very frequent use of brushes and combs and the hygiene
requirements imposed on them, as these are work tools
intended for use with different people.

The problem at the basis of the present invention is that
of eliminating the above disadvantages, by creating an
30 apparatus for removing hair entangled among the teeth of
combs or among the bristles of brushes, which should clean
combs and brushes in an effective, fast and hygienic way.
Such an apparatus should preferably have reasonable weight
and size, such as to be easily placed on a bathroom console
35 or on the sink bench at the hairdressers.

EL869561758US

-2-

Thus, the invention relates to an apparatus for removing hair from the teeth of a comb or the bristles of a brush, comprising at least a whip extending from at least one rotating shaft for cyclically passing through a comb or
5 brush receiving position, and suction means for creating an air stream in the proximity of the receiving position.

In this description and attached claims, the term "whip" is meant to indicate an elongated, essentially filiform, element.

10 During the rotation of the rotating shaft, the or each whip, hits the comb or brush arranged at the receiving position, catching or breaking any hair entangled among the teeth or the bristles, and the hair or fragment of hair, thus freed, is removed by the suction air stream.

15 To increase the disentanglement speed, more whips can be provided, for example distributed along one or more circumferences or along a spiral around the rotating shaft.

Preferably, the whips are distributed along an end portion of the at least one rotating shaft.

20 Moreover, the at least one rotating shaft is preferably horizontally oriented, thus the whips rotate in a vertical plane.

Moreover, preferably, means for collecting the hair removed by the suction means is comprised.

25 To intensify the disentangling effect, the apparatus preferably comprises a first and a second parallel rotating shafts, provided with at least one respective whip.

Advantageously, moreover, the first and the second shaft
30 whips converge from the receiving position towards the suction air stream. In this way, during the rotation, the whips convey the removed hair towards the air stream, thus

-3-

reducing the probability of being scattered in the environment.

To limit the overall size of the apparatus and intensify the disentangling action in the central portion of the receiving position, the rotating shafts preferably are at a mutual distance that is essentially equal to the length of the whips.

For the purpose of preventing the whips of the two shafts from interfering with one another during rotation, the whips of the first rotating shaft may then be axially staggered with respect to the whips of the second rotating shaft.

As an alternative, the whips of the first rotating shaft and the whips of the second rotating shaft may extend in a common transversal plane but in out-of-phase radial positions.

By providing flexible whips, the centrifugal acceleration will cause the whips to adopt the maximum radial extension during rotation, still they will be able to bend if hit by the teeth or bristles or by the same body of the comb or brush, thus preventing breakage and/or damage to other parts.

For the same purpose, flexible or non-flexible whips can be mounted as articulated.

As an alternative, each whip may consist of the free end of a continuous thread wound on a reel.

For the purpose of facilitating the cleaning and replacement of the whips, they can be mounted onto removable whip-holder hubs.

Advantageously, the apparatus further has scrapers that are tangential to the rotating shafts and/or to the whip-holder hubs, for preventing hair from winding around them.

Preferably, the apparatus exhibits a containing box-shaped body provided with an aperture suitable to allow the exit of the whips towards the receiving position and the inlet of air of the suction air stream, and provided with
5 aeration splits.

Preferably, moreover, the aperture of the box-shaped body is arranged at its top. Besides being particularly practical in use, such a configuration favours the removal of disentangled hair, which tends to fall due to gravity
10 force.

Moreover, the apparatus may comprise a protective shell at the aperture of the box-shaped body, so as to prevent the risk of injuries, particularly in case of accidental detachment of the whips.

15 Again for safety reasons, the protective shell preferably has at least one access door urged in the closed position and interacting with a safety switch.

Advantageously, the box-shaped body comprises an extractable drawer-like container for collecting the hair, provided with a hair-retaining filter. In this way, the
20 action of cleaning the filter is facilitated.

For hygiene reasons, the extractable drawer is preferably sealingly closable.

Preferably, moreover, the hair-collecting extractable
25 drawer has a variable height so as to be inserted underneath the motor.

Moreover, to facilitate the cleaning and the possible replacement of the whips, the box-shaped body may have an inspection door at the whips.

30 Preferably, a common motor is present, typically an electric motor, for operating both a fan of the suction means, and the at least one rotating shaft. Besides

- 5 -

limiting the size and the power required by the apparatus, this expedient ensures the simultaneousness of the disentangling and suction actions.

Typically, the apparatus then has first motion transmission means between a driving shaft of the electric motor and the first rotating shaft and second motion transmission means between the first rotating shaft and the second rotating shaft.

The first motion transmission means can consist of a belt drive, preferably at an intermediate portion of the first rotating shaft.

The second motion transmission means can comprise two gearwheels respectively coupled to the first and to the second rotating shaft and engaged with one another, or two rubber-top pulleys coupled through friction.

Gearwheels or rubber-top pulleys are preferably arranged at an end of the rotating shafts, preferably at the end opposed to that from which the at least one respective whip extends.

Further features and advantages will appear more clearly from the description of a preferred but not exclusive embodiment of a cleaning apparatus for hair brushes and combs, illustrated as a non-limitative indication in the attached schematic drawings, wherein:

Figure 1 shows the apparatus according to the invention in longitudinal section (according to line A-A of the following Figure 6).

Figure 2 shows a sectional view in a plane in the proximity of the apparatus top (according to line B-B of the following Figure 5).

Figure 3 shows a cross-sectional view in a plane in the proximity of a rear end (according to line C-C of the

following Figure 6).

Figure 4 shows a cross-sectional view in a plane in the proximity of a front end (according to line D-D of the following Figure 6).

- 5 Figure 5 shows a front view of the apparatus without the whip inspection door.

Figure 6 shows a plan view with the whip inspection door removed.

- 10 Figures 7, 8 and 9 schematically show the operation of the apparatus.

Figure 10 shows a partial sectional view illustrating an alternative embodiment of whips.

Figure 11 shows a partial sectional view of a protective shell of the apparatus.

- 15 Apparatus 1 shown in Figure 1 comprises a box-shaped body 1a enclosing all of the elements suitable to the operation of apparatus 1, such as a motor 6, typically electrical, whose driving shaft 18 provides both to operating a fan 13, and - through a belt drive 10 - to operating horizontal
20 shafts 8 coupled through gearwheels 9 at a first end, and carrying, at the opposed end, hubs 7 with respective whips 11.

A whip inspection door 2 is represented as frontally mounted, for example through a screw coupling 19, 20.

- 25 On the top, the box-shaped body 1a exhibits an aperture 16 suitable to allow the exit of whips 11 during the rotation of shafts 8. Moreover, aperture 16 allows the inlet of air, which is sucked by fan 13 through an air manifold 12 and a passage 17, connected to a preferably extractable drawer-like container 3 for collecting the hair and other removed
30 debris. Thus, between aperture 16 and passage 17 there is defined an essentially vertical suction duct below the

- 7 -

rotating shafts 8.

The sectional view of Figure 2 allows the plan view of the air manifold 12, connected to a filter 5 housed within container 3, in turn sealingly closed by a cover 4, shown as removed from its seat.

Moreover it can be noted that, for the purpose of preventing the whips of the two shafts from interfering with one another during rotation, the whips of the two shafts 8 are axially staggered.

10 In fact, for limiting the overall size of the apparatus, and intensifying the disentangling action in the central portion of the comb or brush receiving position, the rotating shafts 8 exhibit, as shown, a mutual distance that is essentially equal to the length of whips 11.

15 As an alternative to the staggering in axial direction, the whips of the first rotating shaft 8a and the whips of the second rotating shaft 8b could extend in a common transversal plane, but in out-of-phase radial positions.

Figure 3 represents the side pattern of manifold 12 which, starting from fan 13, reaches filter 5.

Figure 4 clarifies the connection between the driving shaft 18, the fan 13 and the rotating shafts 8 through transmission 10 and gearwheels 9.

Moreover, the particular shape of container 3 for collecting the hair is visible, having a variable height so as to be inserted under motor 6.

Moreover, Figure 5 illustrates scrapers 15 acting at the whip-holder hubs 7 for preventing the winding of hair around the whip-holder hubs 7.

30 In Figure 6 there are visible some aeration slits 14 into the box-shaped body 1a for allowing the exit of the sucked air and for motor cooling.

- 8 -

Figures 7-9 schematically show the action of the disentangling whips 11.

5 In Figure 7, the direction of rotation, indicated by the arrows, and the peripheral extension adopted by whips 11 due to the centrifugal force can be seen. In particular, the rotating shafts 8 are counter-rotating in such directions that the respective whips 11 converge from the receiving position of brush S, centrally above the rotating shafts 8, towards the suction air stream, wherein they
10 convey the hair removed from the bristles of brush S.

Figures 8 and 9 illustrate the manner how the whips 11, made as flexible, yield when on their path they meet the bristles of a brush S, or respectively, the teeth of a comb P, arranged in the receiving position.

15 More in detail, the operation of apparatus 1 is as follows.

By acting on the switch (not shown), it is possible to power the electric motor 6 which, in its circular motion, will actuate both the fan 13 and the rotating shafts 8, and thus, whips 11 facing aperture 16 of the box-shaped body 1.
20 The motion of fan 13 within the toric chamber-shaped manifold 12 will cause a continuous air flow within apparatus 1, sucking it through aperture 16, where the disentangling whips 11 act; the sucked air will enter into the drawer-like collecting container 3, passing through the
25 filtrating meshes of filter 5, and it will be discharged clean outside through slits 14.

A condition of continuous suction and discharge is thus stabilised, suitable for collecting and retaining all residuals that come in the proximity of aperture 16, where
30 the disentangling whips 1 act.

The disentangling and cleaning action is performed by whips 11, which during the rotation of rotating shafts 8, cyclically pass through the receiving position of comb P or brush S, in the proximity of aperture 16, where they

effectively catch and break the hair and other residues entangled among the bristles of brush S or the teeth of comb P. The motion of shafts 8 and thus, of whips 11 mounted on hubs 7, integral with them, is counter-rotating, that is, the first on the left in Figure 7 rotates in clockwise direction, and the second rotates in counter-clockwise direction; this allows conveying what removed towards the centre, where the suction air flow does not have difficulty to catch residuals and hair and convey them to the collecting container 3.

It is worth noting that during the rotation of the rotating shafts 8, whips 11 are always dipped in the suction air stream, which favours removal of any hair entangled in the whips 11 themselves.

In the practical implementation of the apparatus of the invention, the most functional whips 11 will be selected in conformity with the tools they have to clean. Thus, they can be rigid or more or less flexible, and/or articulatedly mounted and orbitally mounted on the entrainment hubs 7.

As an alternative, as illustrated in the partial section of Figure 10, each whip 11 may consist of the free end of a continuous thread, for example an elastic thread, wound on a reel 21. Reel 21 is housed within a coaxial seat of hub 7, with friction disks 25 interposed. Hub 7 has a hole 22 in its side wall so as to allow the exit of whip 11. An adjusting screw 23, provided with an end rubber 24, allows constraining reel 21 with hub 7 and shaft 8 and, when loosened, it allows extracting a new portion of thread to renew whip 11.

To increase the safety of apparatus 1, moreover, there can be provided, as illustrated in Figure 11, a protective shell 26 arranged at aperture 16. Since the whips are subject to centrifugal force, in case of detachment of a whip 11 during operation of the apparatus, it would be retained by the protective shell 26.

- 10 -

Moreover, since the receiving position of the comb or of brush S is bounded by the same protective shell 26, the user's hands do not contact the whips.

5 The protective shell 26 shown in Figure 11 is provided with a rear access door 27 and with a front access door 28, shown in opened position. Doors 27 and 28 are urged in the closed position of protective shell 26, as shown by the arrows, for example by torsion springs at the hinge points 29, 30.

10 The front access door 28 exhibits a projection 31 which, in the illustrated opened position, co-operates with a safety switch 32, connected to motor 6 through electrical connections, not shown. The illustrated safety switch 32 is of the push-button type, and it actuates motor 6 only when
15 the front door 28 is held downwards, against the force of the torsion spring at hinge 30. Thus, requiring the use of both hands, apparatus 1 is safe also against the actuation by children.

The invention thus devised can be subject to changes and
20 variants, all falling within the inventive scope. All details can be replaced with other technically suitable elements, in practice, the materials used, provided that they are compatible with the specific use, and the size and the shapes that are contingent to the invention can be of
25 any type according to the requirements.

For example, separate motors could be provided for actuating the fan 13 and the rotating shafts 8, as well as different motion transmission systems. For example, two separate transmissions could be provided for the two
30 rotating shafts 8, and the transmissions can be implemented through gears, belts or rubber-top pulleys coupled through friction.

As regards the number of whips, it can be understood that several embodiments can be devised. In fact, while on the

- 11 -

one hand a single rotating shaft with a single whip could suffice, on the other hand the single rotating shaft or each rotating shaft could be provided with more than two whips distributed along a circumference and/or with more
5 axially spaced whips so as to act along the entire length of a brush without having to move it forwards and backwards.

As an alternative to the extractable drawer provided with filter, as hair collecting means it could be possible, for
10 example, to use a collecting bag as those used in vacuum cleaners.

CLAIMS

- 1) Apparatus (1) for removing hair from the teeth of a comb (P) or the bristles of a brush (S), comprising at least a
5 whip (11) extending from at least one rotating shaft (8) for cyclically passing through a comb or brush receiving position, and suction means (12, 13) for creating an air stream in the proximity of the receiving position.
- 2) Apparatus (1) according to claim 1, characterised in
10 that it comprises means (3, 5) for collecting the hair sucked by the suction means (12, 13).
- 3) Apparatus (1) according to claim 1 or 2, characterised in that it comprises a first (8a) and a second (8b) parallel rotating shafts, provided with at least one
15 respective whip (11).
- 4) Apparatus (1) according to claim 3, characterised in that the first (8a) and the second (8b) rotating shafts are counter-rotating in such directions that the respective whips (11) converge from the receiving position towards the
20 suction air stream.
- 5) Apparatus (1) according to claim 3 or 4, characterised in that the rotating shafts (8) are at a mutual distance that is essentially equal to the length of the whips (11).
- 6) Apparatus (1) according to any one of the previous
25 claims, characterised in that the whips (11) are flexible.
- 7) Apparatus (1) according to any one of the previous claims, characterised in that the whips (11) are mounted as articulated.
- 8) Apparatus (1) according to any one of claims 1-6,
30 characterised in that each whip (11) consists of the free end of a continuous thread wound on a reel (21).

- 13 -

- 9) Apparatus (1) according to any one of the previous claims, characterised in that the whips (11) are mounted on removable whip-holder hubs (7).
- 5 10) Apparatus (1) according to any one of the previous claims, characterised in that it has scrapers (15) that are tangential to the rotating shafts (8) and/or to the whip-holder hubs (7).
- 10 11) Apparatus (1) according to any one of the previous claims, characterised in that it exhibits a containing box-shaped body (1a) provided with an aperture (16) suitable to allow the exit of the whips (11) towards the receiving position, and the inlet of air of the suction air stream, and provided with aeration slits (14).
- 15 12) Apparatus (1) according to claim 11, characterised in that the aperture (16) of the box-shaped body (1a) is arranged at its top.
- 13) Apparatus (1) according to one of claims 11 and 12, characterised in that it comprises a protective shell (26) at the aperture (16) of the box-shaped body (1a).
- 20 14) Apparatus (1) according to claim 13, characterised in that the protective shell (26) has at least one access door (27, 28) urged in the closed position and interacting with a safety switch (32).
- 25 15) Apparatus (1) according to one of claims 11 to 14, characterised in that the box-shaped body (1a) comprises an extractable drawer-like container (3) for collecting the hair, provided with a hair-retaining filter (5).
- 30 16) Apparatus (1) according to one of claims 11-15, characterised in that the box-shaped body (1a) has an inspection door (2) at the whips (11).
- 17) Apparatus (1) according to any one of the previous claims, characterised in that it has a common motor (6) for

- 14 -

operating both a fan (13) of the suction means, and the at least one rotating shaft (8).

18) Apparatus (1) according to claim 17 when depending on claim 3, characterised in that it has first motion
5 transmission means (10) between a driving shaft (18) of the electric motor (6) and the first rotating shaft (8a) and second motion transmission means (9) between the first rotating shaft (8a) and the second rotating shaft (8b).

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 April 2001 (05.04.2001)

PCT

(10) International Publication Number
WO 01/22846 A1

(51) International Patent Classification⁷: **A45D 24/46**,
A46B 17/06

(21) International Application Number: PCT/IT00/00383

(22) International Filing Date:
28 September 2000 (28.09.2000)

(25) Filing Language: Italian

(26) Publication Language: English

(30) Priority Data:
MI99A002026 29 September 1999 (29.09.1999) IT

(71) Applicant and

(72) Inventor: **DASSI, Francesco** [IT/TT]; Via Dellavecchia, 7,
I-28100 Novara (IT).

(74) Agent: **RICCARDI, Elisa**; Porta, Checcacci & Associati
S.p.A., Viale Sabotino, 19/2, I-20135 Milano (IT).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

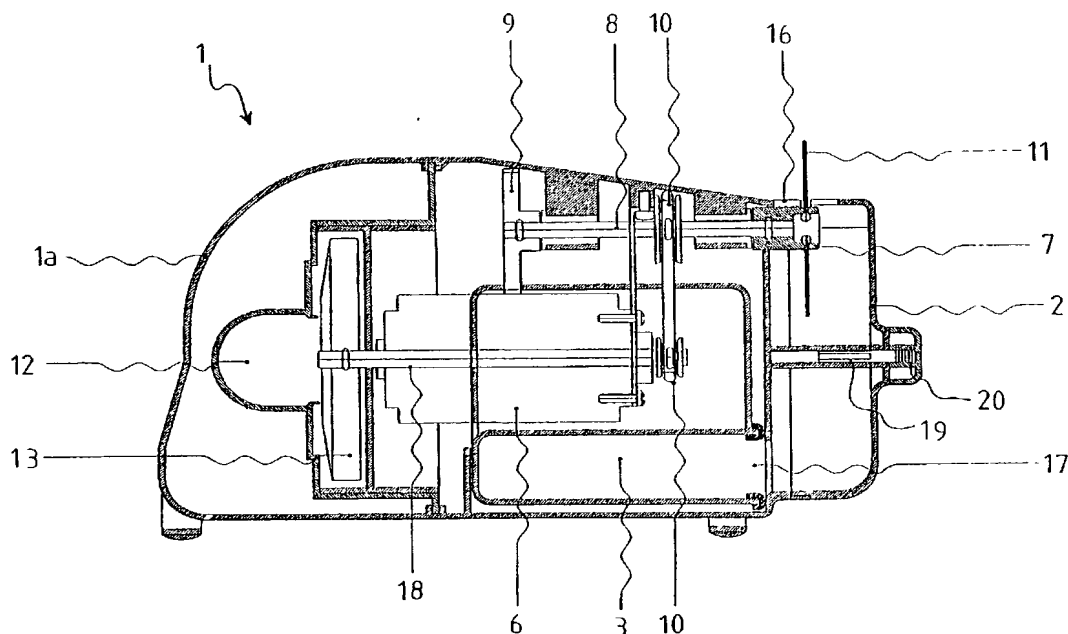
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

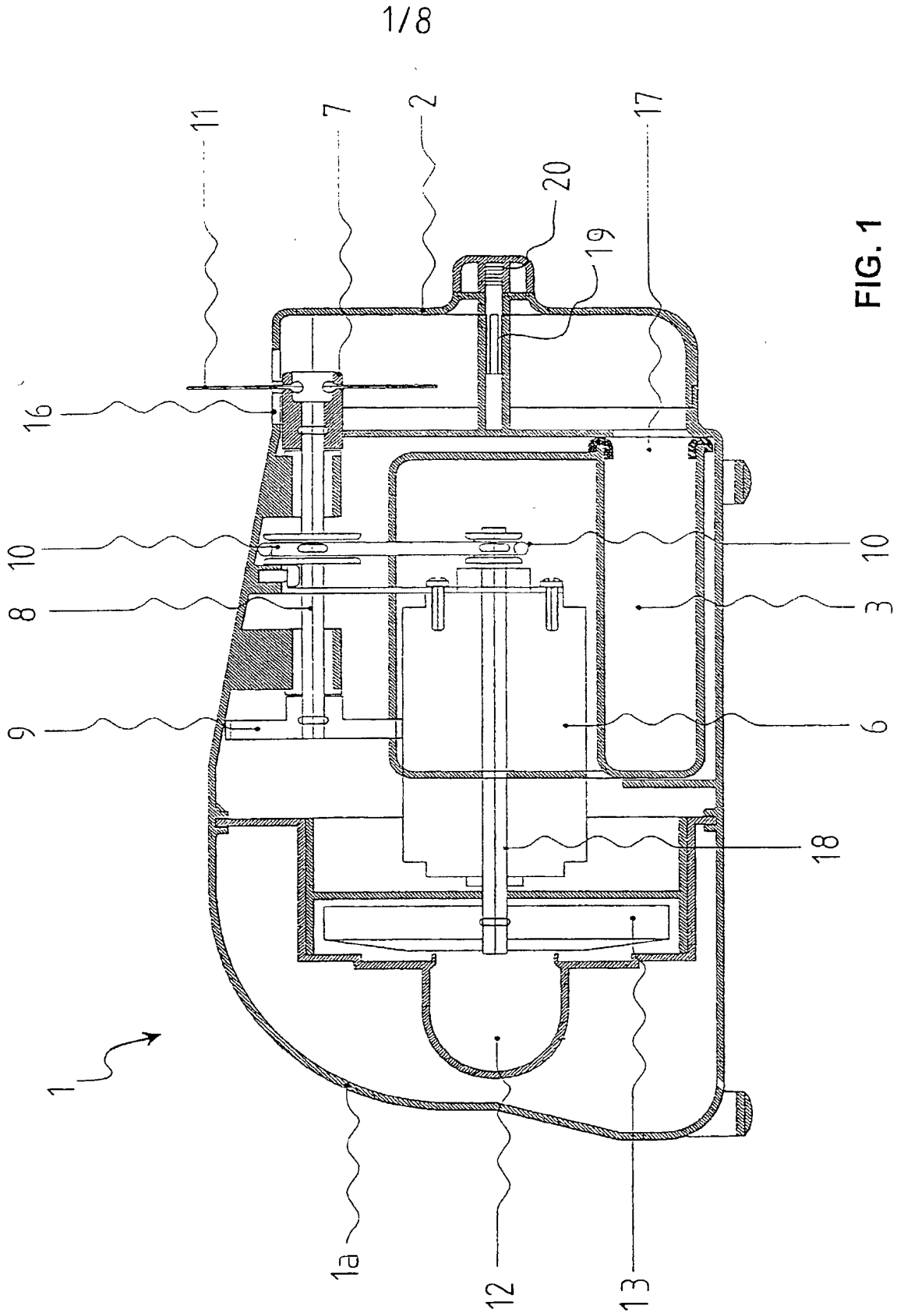
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette

(54) Title: **CLEANING APPARATUS FOR HAIR BRUSHES AND COMBS**



(57) Abstract: There is described an apparatus (1) for removing hair entangled among the teeth of combs or the bristles of brushes, after their use, which acts through the action of rotating whips (11) and of an assembly for sucking (12, 13) and collecting (3, 5) the removed residuals.

WO 01/22846 A1



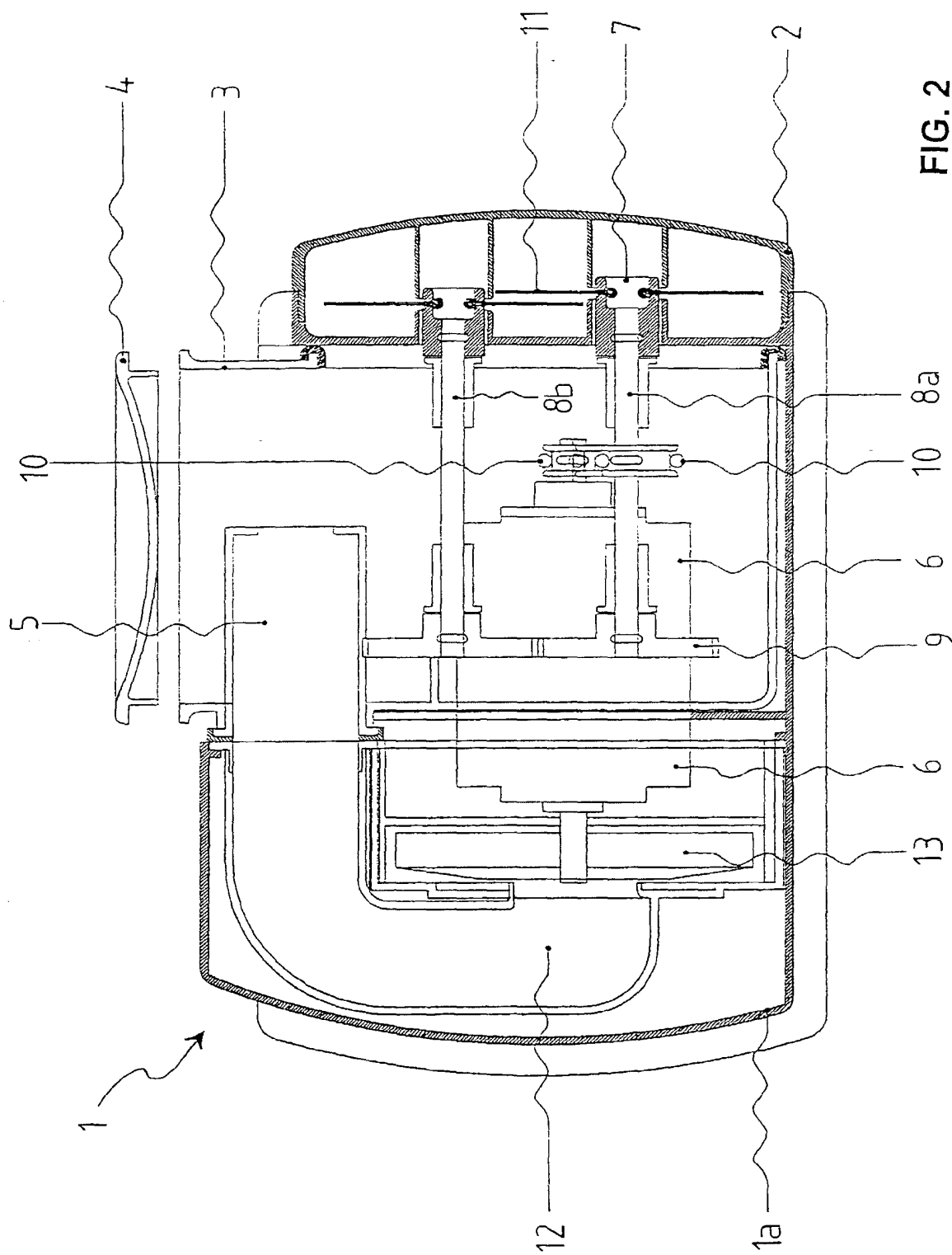


FIG. 2

3/8

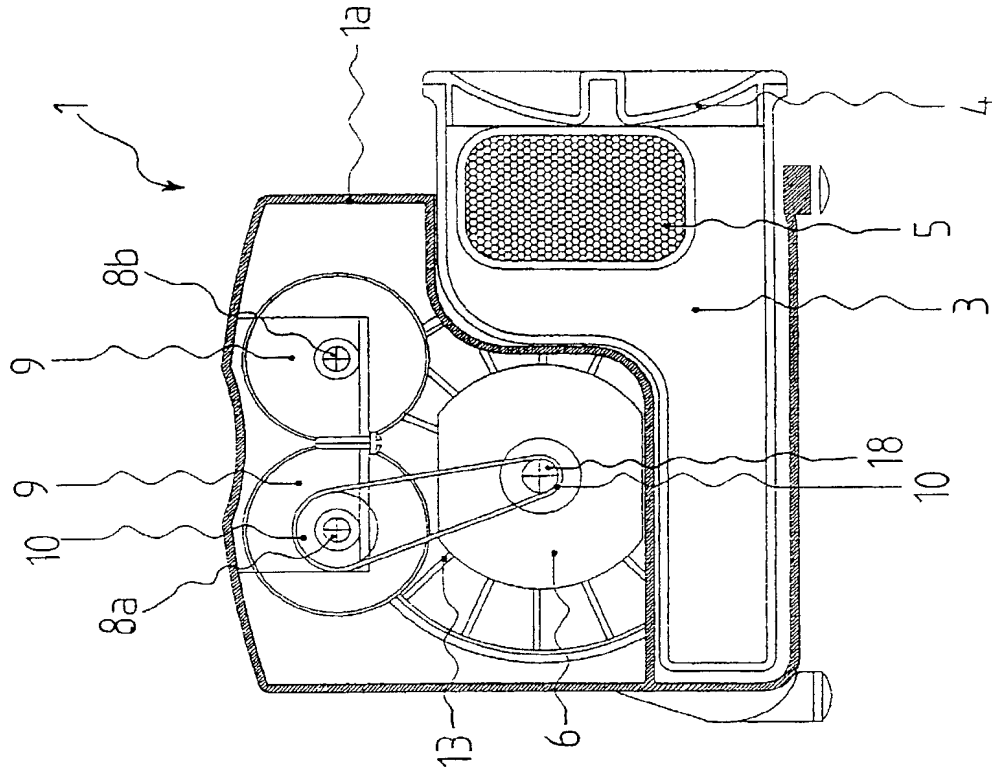


FIG. 4

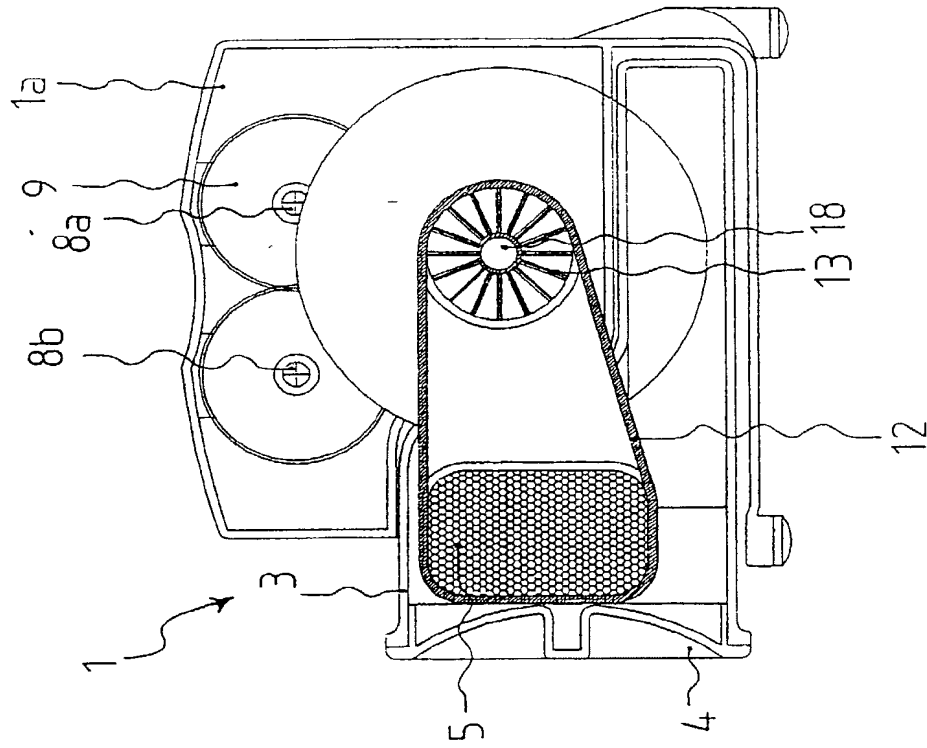


FIG. 3

4/8

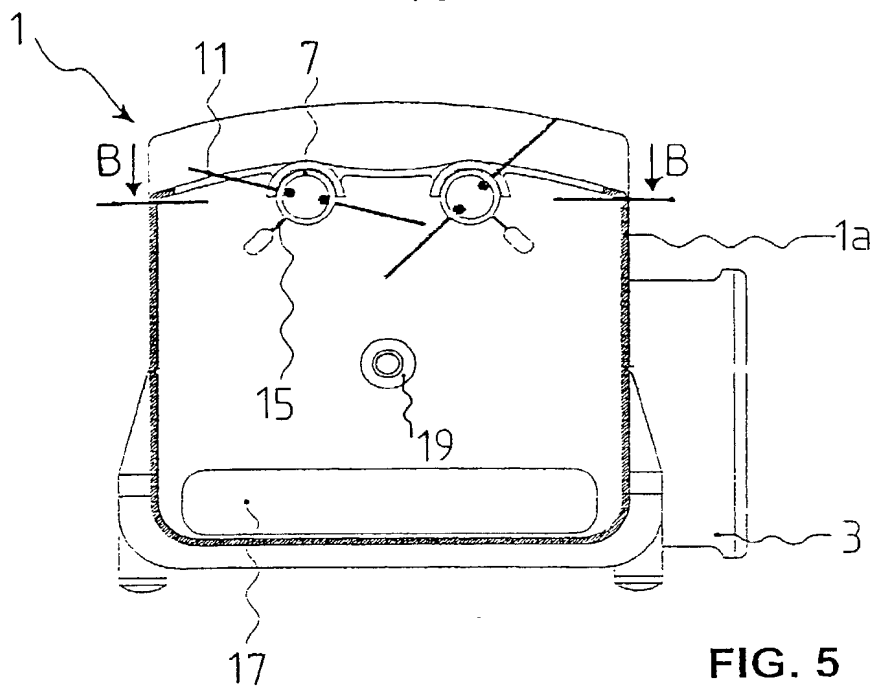


FIG. 5

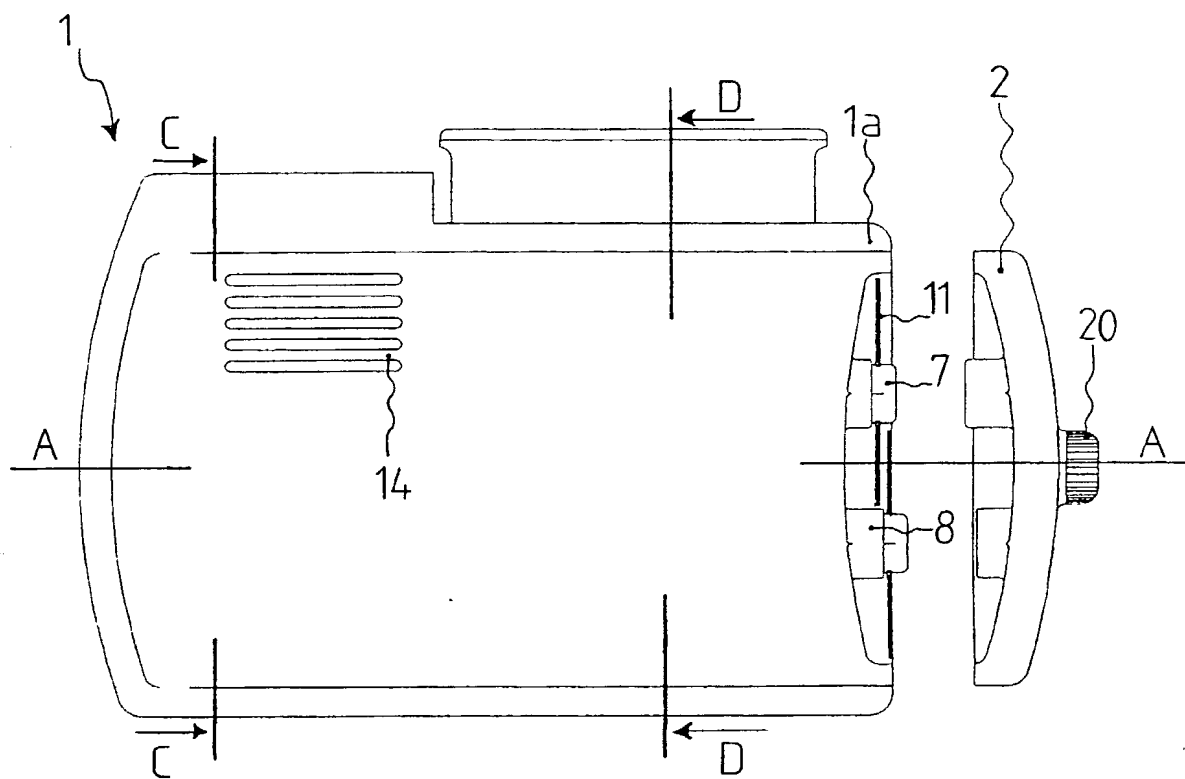


FIG. 6

5/8

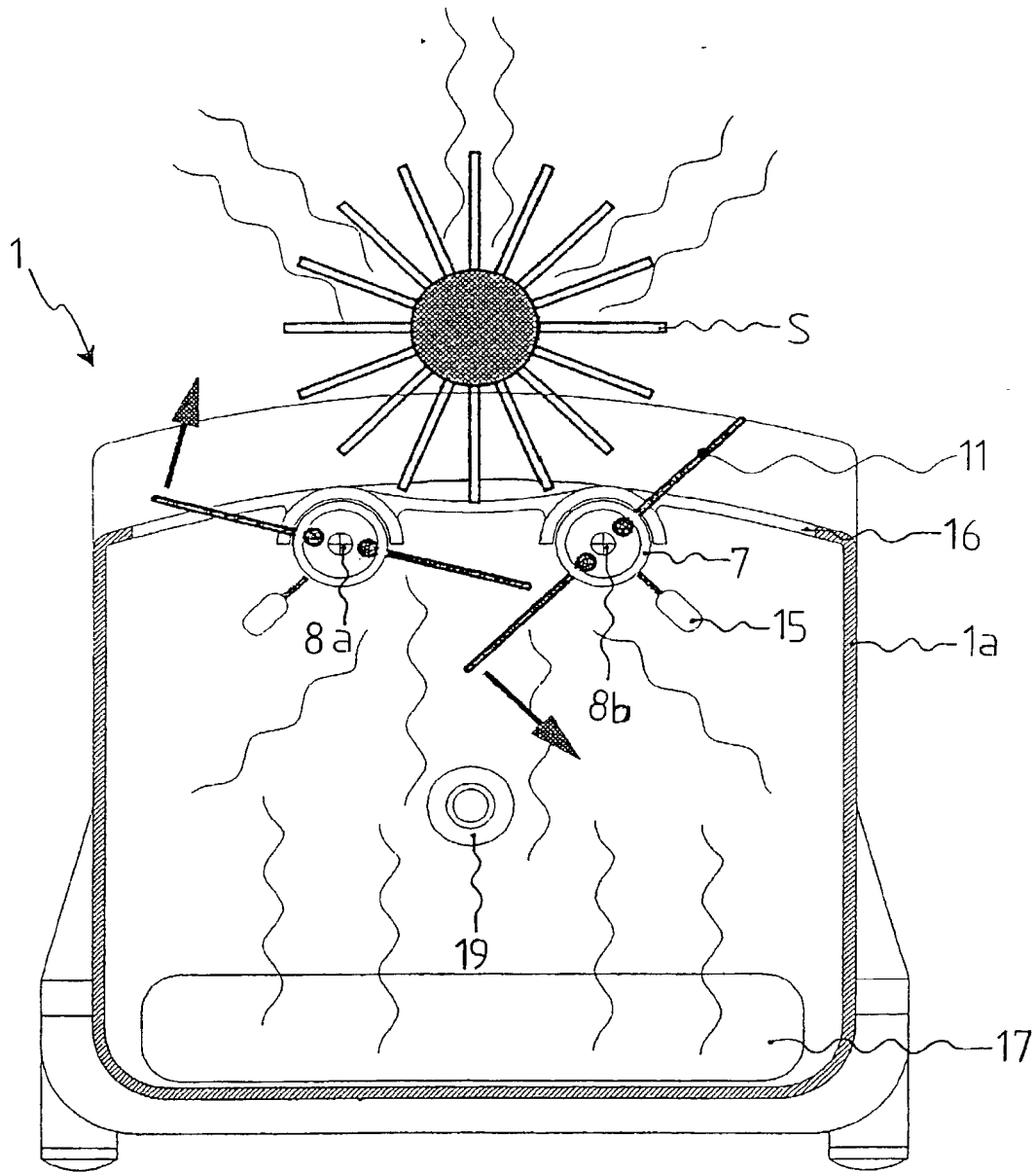


FIG. 7

6/8

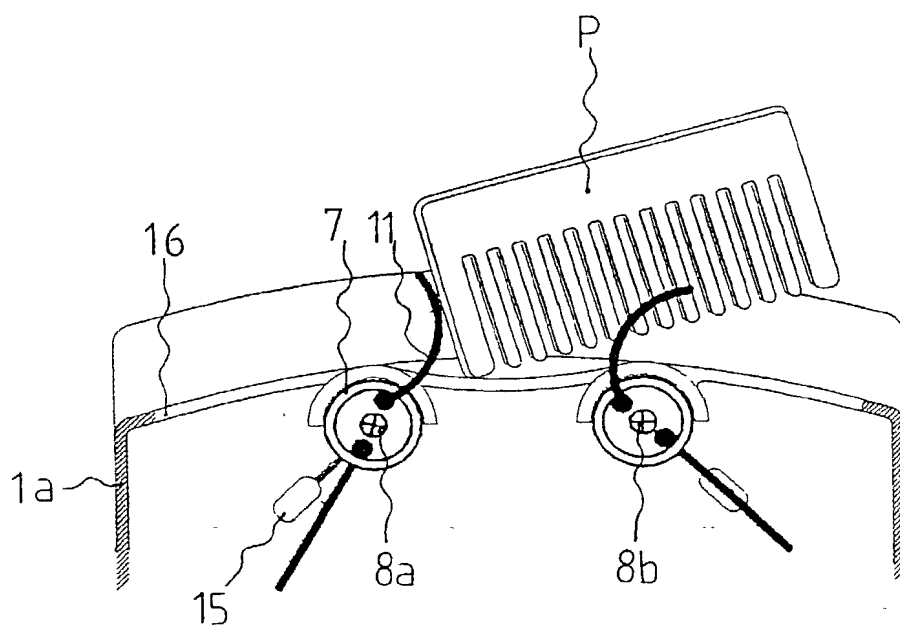


FIG. 8

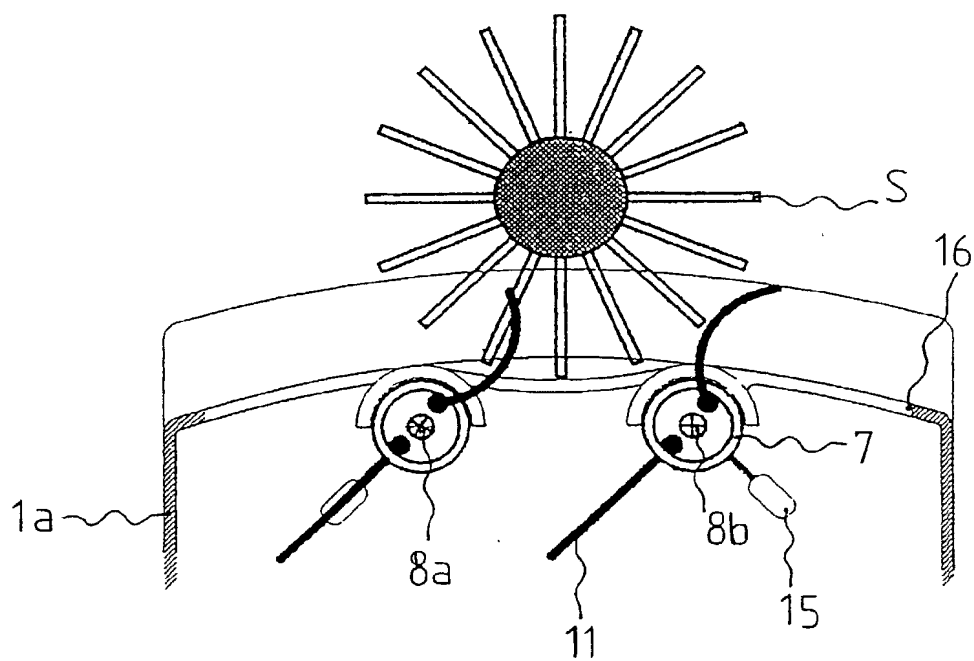


FIG. 9

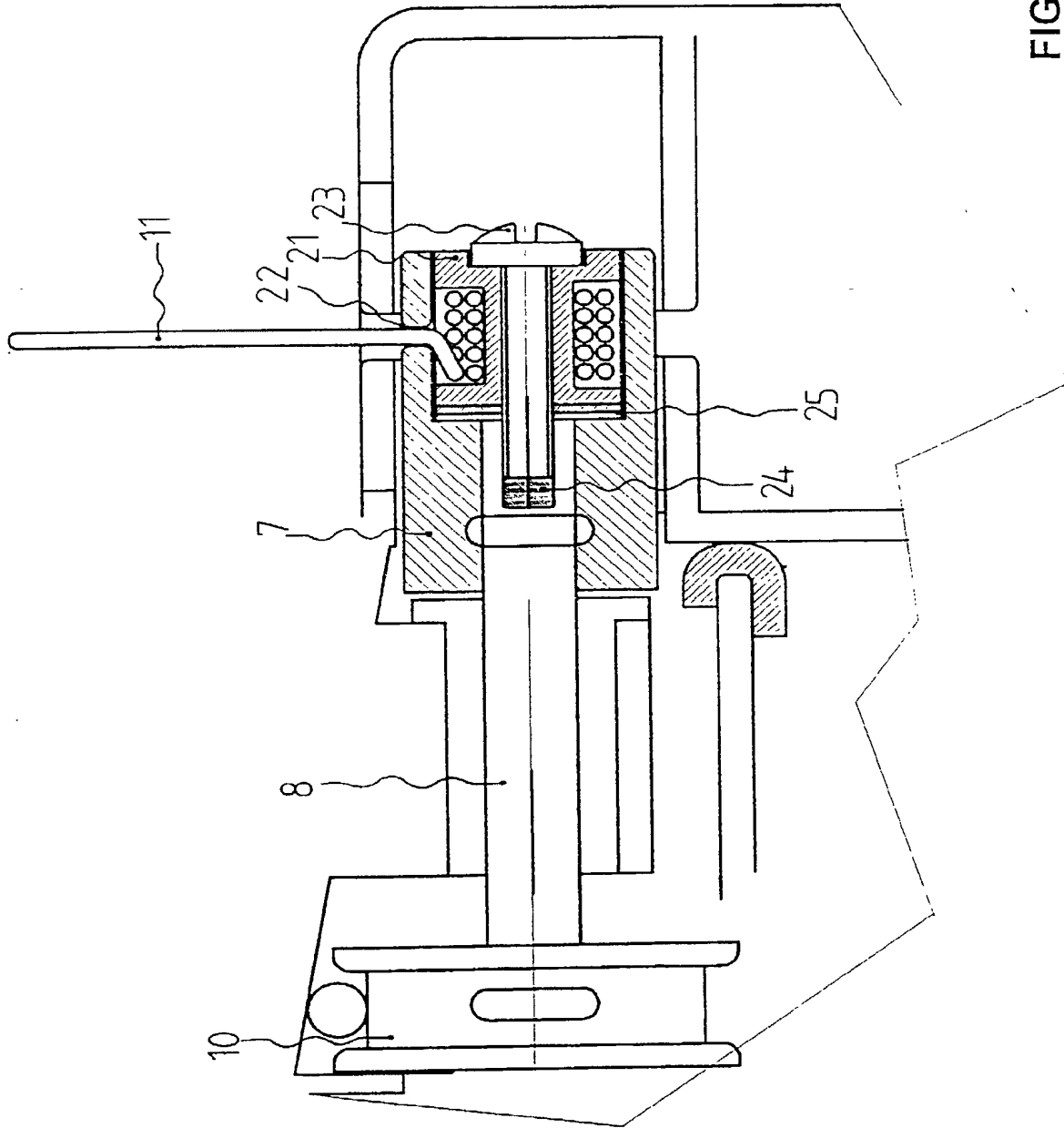


FIG. 10



FIG. 11



[70101/00101]

DECLARATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am an original, first (if only one name is listed below) and joint inventor (if multiple names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **CLEANING APPARATUS FOR HAIR BRUSHES AND COMBS**, the specification of which was filed as PCT International Application Number **PCT/IT00/00383** on September 28, 2000.

PRIOR FOREIGN APPLICATION(S)

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)-(d) and 172, of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificated having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)

Number	Country filed	Day/month/year	Priority Claimed Under 35 USC 119
MI99A002026	Italy	29 September 1999	Yes

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).



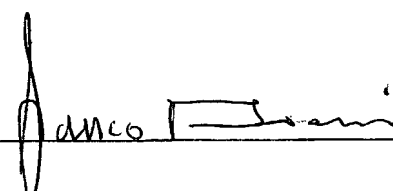
Please address all communications regarding this application to:

FAY KAPLUN & MARCIN, LLP
100 Maiden Lane, 17th Fl
New York, New York 10038
(212) 898-8870 (tel) / (212) 208-6819 (fax)

Please direct all contacts to Oleg F. Kaplun at (212) 898-8819 or via email at
okaplun@fkmiplaw.com.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful and false statements may jeopardize the validity of the application or any patent issued thereon.

1-00
Inventor: **Francesco DASSI**

Inventor's Signature: 

Date: April 2, 2002

Residence: Via Dellavecchia, 7
I-28100 Novara, Italy



Citizenship: Italy

Post Office Address: Same as above.